



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/578,355	05/24/2000	Hiroshi Kowaki	39487/DBP/A400	4894

23363 7590 01/31/2005

CHRISTIE, PARKER & HALE, LLP  
PO BOX 7068  
PASADENA, CA 91109-7068

EXAMINER
----------

LAO, LUN S

ART UNIT	PAPER NUMBER
----------	--------------

2643

DATE MAILED: 01/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/578,355

**Applicant(s)**

KOWAKI, HIROSHI

**Examiner**

Lun-See Lao

**Art Unit**

2643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 19-21 and 23-54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-21 and 23-54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Introduction***

1. This is response to the amendment filed on 09-31-2004. Claim 54 has been added and claims 19-21 and 23-54 are pending.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 19-21, 23-24, 30-32, 38-40, 46-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagawa (US PAT. 5,128,999) in view of Montag et al. (US PAT. 6,584,202).

Consider claim 19, Yanagawa teaches an audio system for reproducing at least three original audio signals at a plurality of reproduction points, the audio system comprising:

at least one processing circuit for producing a processed sound signal from said original audio signals (see fig.3 (  $L_{in}$ ,  $R_{in}$ ,  $S_{in}$ ,  $C_{in}$ ), by branching a signal from one of

Art Unit: 2643

said original audio signals (see fig.3 (  $L_{in}$ ,  $R_{in}$ ,  $S_{in}$ ,  $C_{in}$  ), branched audio signal ( $C_R$ ,  $FL_R$ ,  $RL_R$ ,  $RR_R$  ), and attenuating the amplitude level of said delayed audio signal (63-66); and at least one processing circuit for adding said processed sound signal to one of said original audio signals other than the original audio signals from which said processed sound signal is produced (see col.3 line 53-col.4 line 18), but Yanagawa does not clearly teach delaying said branched audio signal in accordance with at least one distance between said reproduction points.

However, Montag teaches delaying a branched audio signal in accordance with at least one distance between reproduction points (see figs. 2-3 and col.4 line 16-col.5 line 41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Montag into Yanagawa to provide an equally natural aural impression, with the feeling of a natural distance of the acoustic sources can be produced when reproducing a stereophonic audio signal within an enlarged listening zone inside the space to be exposed to sound, particularly both on the driver side and on the front seat passenger side inside of the passenger compartment of motor vehicle.

Consider claim 38, it is the method claim corresponding to apparatus claim 19. See previous apparatus claim 19 for rejection.

Consider claims 20-21, Yanagawa teaches that an audio system of the original audio signals comprise at least one front signal, at least one rear signal and a center signal (see fig.3 (  $L_{in}$ ,  $R_{in}$ ,  $S_{in}$ ,  $C_{in}$  ); said at least one processing circuit for producing a

Art Unit: 2643

processed sound signal comprises at least one front processing circuit (Lin) for producing at least one processed front sound signal (Lout) and a center processing circuit (Cin) for producing a processed center sound signal (Cout); said at least one front processing circuit (Lin) produces said at least one processed front sound signal by branching said at least one front signal, delaying said branched at least one front signal (63) in accordance with at least one distance between at least one reproduction point associated with said at least one front signal (Lin) and at least one other reproduction point, and attenuating the level of said delayed at least one front signal (63); and said at least one center processing circuit (Cin) produces a processed center sound signal by branching said center signal, delaying said branched center signal (66) in accordance with at least one between a reproduction point associated with said center signal (Cout) and at least one other reproduction point, and attenuating the level of said delayed center signal (66); and said at least one processing circuit for adding (51) said at least one processed front sound signal (Lin) and said processed center sound signal (Cin) to said at least one rear audio signal (RR<sub>R</sub>) (see col.3 line 53-col.4 line 51); and an audio system of least one rear signal (see fig.3, (Sin)) comprises a rear left signal (RL<sub>R</sub>) and a rear right signal (RR<sub>R</sub>); and said at least one processed front sound signal (FLout) comprises a processed front left signal (Lin) and a processed front right signal (Rin); but Yanagawa does not clearly teach delaying said branched audio signal in accordance with at least one distance between said reproduction points.

However, Montag teaches delaying a branched audio signal in accordance with at least one distance between reproduction points (see figs. 2-3 and col.4, line 16-col.5 line 41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Montag into Yanagawa to provide an equally natural aural impression, with the feeling of a natural distance of the acoustic sources can be produced when reproducing a stereophonic audio signal within an enlarged listening zone inside the space to be exposed to sound, particularly both on the driver side and on the front seat passenger side inside of the passenger compartment of motor vehicle.

Consider claims 23-24, Yanagawa teaches an audio system of least one processing circuit for producing a processed sound signal attenuates (fig.3, (VCA 52-55 and 60,61,62) the amplitude level of said delayed audio signal in accordance with a predetermined stereo audio effect (see col.4 line 19-col.5 line 25); and at least one processing circuit for producing a processed sound signal further corrects a frequency characteristic of said processed sound signal (see abstract).

Consider claim 30, Yanagawa teaches an audio system for reproducing at least three original audio signals each of which is reproduced at a plurality of different reproduction points, comprising (see fig.3):

at least one processing stage for producing a processed sound signal from said original audio signals (see fig.3 (  $L_{in}$ ,  $R_{in}$ ,  $S_{in}$ ,  $C_{in}$ )) to be reproduced at a plurality of predetermined reproduction points located far from a given reproduction point (FLout,

Art Unit: 2643

FRout, FLout, Rrout and Cout) said at least one processing stage comprising: a plurality of branch-processing stages (41,43,47,45); a first add-processing stage (51); and a processed sound generating stage (63);

said branch-processing stages(41,43,45,47) each branching a signal from one of said original audio signals(see fig.3 (  $L_{in}$ ,  $R_{in}$ ,  $S_{in}$ ,  $C_{in}$ );

said first add-processing stage adding (51) said branched audio signals to each other,

said processed sound generating stage delaying (63) said added audio signal and attenuating the level of said added (51) audio signal;

at least one distribution-processing stage for distributing said processed sound signal to one or a plurality of audio signals (see fig.3 (  $L_{in}$ ,  $R_{in}$ ,  $S_{in}$ ,  $C_{in}$ )) to be reproduced at said predetermined reproduction points (FLout, FRout, FLout, RRout, Cout) (see col.4 line 19-col.5 line 35); and

at least one second signal add-processing stage (54), each for adding said distributed signals to one of said original audio signals(see fig.3 (  $L_{in}$ ,  $R_{in}$ ,  $S_{in}$ ,  $C_{in}$ )) other than the original audio signals (see fig.3 (  $L_{in}$ ,  $R_{in}$ ,  $S_{in}$ ,  $C_{in}$ )) from which the signals are branched (see co.3 line 53-col.4 line 35), but Yanagawa does not clearly teach that said processed sound generating stage delaying said added audio signal is performed in accordance with the distance from said given reproduction point to said predetermined reproduction points located far from said given reproduction point.

However, Montag teaches that a processed sound generating stage delaying an added audio signal in accordance with the distance from a given reproduction point to

Art Unit: 2643

predetermined reproduction points located far from the given reproduction point (see figs. 2-3 and col.4 line 16-col.5 line 41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Montag into Yanagawa to provide an equally natural aural impression, with the feeling of a natural distance of the acoustic sources can be produced when reproducing a stereophonic audio signal within an enlarged listening zone inside the space to be exposed to sound, particularly both on the driver side and on the front seat passenger side inside of the passenger compartment of motor vehicle.

Consider claim 46, it is the method claim corresponding to apparatus claim 30. See previous apparatus claim 30 for rejection.

Consider claims 31-32, Yanagawa teaches an audio system at least one processing stage attenuates the level of said delayed audio signal in accordance with a predetermined stereo audio effect (see col.4 line 7-col.5 line 35); and at least one processing stage (see fig.3, (VCA)) further corrects a frequency characteristic of said processed sound signal (see col.4line 7-col.5 line 35).

As to claims 47-48, these are the method claims of claims 31-32 and thus note the rejections of claims 31-32, respectively.

Consider claims 39-40, Yanagawa teaches a method of reproducing audio signals of the producing a processed sound signal comprises attenuating the amplitude level of said delayed audio signal in accordance with a predetermined stereo audio effect (see col.4 line 7-col.5 line 25); and the producing a processed sound signal



Art Unit: 2643

comprises correcting a frequency characteristic of said processed sound signal (see col.3 line 53-col.4 line 52).

4. Claims 25-29, 33-37, 41-45, 49-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagawa (US PAT. 5,128,999) as modified by Montag (US PAT. 6,584,202) as applied to claims 19, 30, 38 and 46 above, and further in view of Kuusama (US PAT. 6,332,026).

Consider claims 25 and 33, Yanagawa as modified by Montag does not clearly teach that the original audio signals are six audio signals and include an audio signal to be reproduced at a center front position in an audio space, audio signals to be reproduced on a left front side and a right front side in an audio space, audio signals to be reproduced on a left rear side and a right rear side in an audio space, and an audio signal of low frequency.

However, Kuusama teaches that the original audio signals are six audio signals (see fig.3 (L, R, LS, RS, C, S) and include an audio signal to be reproduced at a center front position (19) in an audio space, audio signals to be reproduced on a left front side (17) and a right front side (18) in an audio space, audio signals to be reproduced on a left rear side and a right rear side (surround channel) in an audio space, and an audio signal of low frequency (19)(see col.4 line 30-col.5 line 22).

Art Unit: 2643

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Yanagawa as modified by Montag with the teaching of Kuusama to provide a better surrounding sound system.

Consider claims 41 and 49, these are the method claims corresponding to apparatus claims 25 and 33. See previous apparatus claims 25 and 33 respectively for rejections.

Consider claims 26-29 and 34, Kuusama teaches an audio system of a device for supplying said six audio signals is a multichannel player unit (such as laserdisc player and hifi-VCR) for reproducing audio data recorded on a recording medium by a multichannel recording system (see col.1 lines 9-24); and a case where said six audio signals are recorded on said recording medium to be reproduced by said multichannel player unit (such as laserdisc player and hifi-VCR); processed sound signals associated with said audio signals to inherently be reproduced at said center front position and on said left and right front sides(see fig.3, L, R), are added (6) to said audio signals to be reproduced on said left and right rear sides (20, surround sound channel); and processed sound signals associated with said audio signals to be reproduced on said left and right rear sides (LS and RS), are added (6) to said audio signals to be reproduced on said left and right front sides (17,18) and are added (6) to said audio signals to be reproduced at said center front position (21) (see col.4 line 54-col.5line 22); and an audio system further comprising: a switch (see fig.3, (10-12)) for setting a priority mode to determine a listening point in said audio space which receives the optimum sound, wherein the amplitude levels of said audio signals at said center front

Art Unit: 2643

position, on said left and right front sides (17,18) and on said left and right rear sides (20, surround channel) are changed in accordance with the setting of said switch (see col.4 line 30-col.5 line 29).

Consider claims 42 and 50, these are the method claims corresponding to apparatus claims 26 and 34. See previous apparatus claims 26 and 34 for rejection.

Consider claims 35-36, Kuusama teaches an audio system of a case where said six audio signals (see fig.3 (L, R, LS, RS, C, S) are recorded on said recording medium to be reproduced by said multichannel player unit (see col.1 lines 13-25), audio signals to be reproduced at said center front position (c) and on said left and right front sides, are added (6) to audio signals to be reproduced on said left and right rear sides (20, surround channel), respectively, and audio signals to be reproduced on said left and right rear sides (LS, RS) are added to the audio signals to be reproduced on said left and right front sides (17,18) and at said center front position (21), respectively (see col.4 line 30-col.5 line22).

Consider claim 37, this is the method claim corresponding to apparatus claim 29. See previous apparatus claim 29 for rejection.

Consider claims 43-44, Kuusama teaches a method of reproducing audio signals of the six audio signals (see fig.3 (L, R, LS, RS, C, S) are recorded on said recording medium reproduced by said multichannel player unit (see col.1 lines 13-25), the method further comprising: adding (see fig.3,6) processed sound signals associated with said audio signals to be reproduced at said center front position (c) and on said left and right front sides to said audio signals to be reproduced on said left and right rear sides (LS

Art Unit: 2643

5. Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagawa (US PAT. 5,128,999) as modified by Montag (US PAT. 6,584,202) as applied to claims 19, 30, 38 and 46 above, and further in view of Hoellermann (EP 642292).

Consider claim 54, Yanagawa as modified by Montag does not clearly teach that the sound signals for the reproduction points are adjusted in accordance with at least one distance between the reproduction points and a listener

However, Hoellermann teaches that the sound signals for the reproduction points are adjusted in accordance with at least one distance between the reproduction points and a listener (see figs. 1-3 and abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Yanagawa as modified by Montag with the teaching of Hoellermann to provide a better sound system.

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 19-54 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Polk(US PAT. 4,569,074) and Yamato (US PAT. 5,305,386) are cited to show other related an audio system.

Art Unit: 2643

RS); and adding (6) processed sound signals associated with said audio signals to be reproduced on said left and right rear sides (20, surround channel) to said audio signals to be reproduced on said left and right front sides (17,18) and to said audio signals to be reproduced at said center front position (21)(see col.4 line 30-col.5 line22).

Consider claims 45 and 53, Yanagawa teaches a method of reproducing audio signals of further comprising:

setting a priority mode (FLout, FRout, FLout, Rrout, Cout) to determine a listening point in said audio space which receives the optimum sound, wherein the amplitude levels of said audio signals at said center front (Cin) position, on said left (Lin) and right (Rin) front sides and on said left and right rear sides (Sin) are changed in accordance with the setting of said mode (see col.3 line 53-col.4 line 52).

Consider claims 51-52 , Kuusama teaches a method of reproducing audio signals of six audio signals(see fig.3 (L, R, LS, RS, C, S) are recorded on said recording medium reproduced by said multichannel player unit, the method further comprising (see col.1 line 13-25):

adding (6) audio signals to be reproduced at said center front position(21) and on said left and right front sides (L, R) to audio signals to be reproduced on said left and right rear sides(20, surround channel), respectively; and

adding (6) audio signals to be reproduced on said left and right rear sides (20, surround channel) to audio signals to be reproduced on said left and right front sides (17,18) and at said center front position(c), respectively (see col.4 line 53-col.5 line22).

Art Unit: 2643

8. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington.


VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao,Lun-See whose telephone number is (703) 305-2259. The examiner can normally be reached on Monday-Friday from 8:00 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz, can be reached on (703) 305-4708.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (703) 306-0377.

Lao, Lun-See  
Patent Examiner  
US Patent and Trademark Office  
Crystal Park 2  
(703305-2259)

  
**DUC NGUYEN**  
**PRIMARY EXAMINER**